

THE LIZARD GENUS *AMEIVA* IN ECUADOR<sup>1</sup>

JAMES A. PETERS

San Fernando Valley State College  
Northridge, California

INTRODUCTION

The teiid genus *Ameiva* is represented in Ecuador by five species, one of which will be described as new in this paper. The other four species have been known to herpetologists for many years, although two of them (*bridgesii* and *septemlineata*) have been occasionally confused and have at least once been synonymized (Burt and Burt, 1933:53). The species are most common in the lowlands of the country, although specimens have been collected at localities as high as 1700 meters on the western slopes of the Andes. The maximum altitude reached on the eastern slopes is clearly less than 1000 meters, and perhaps even less than 500 meters. Populations are large when the species is present, and it is not expected that the genus is to be found outside the limits currently established.

This survey of the genus was begun in 1958-1959 during my tenure of a Fulbright professorship at the Universidad Central in Quito, Ecuador, based on materials I collected, as well as the collections of the Escuela Polytecnica Nacional of Quito and of Dr. Gustavo Orces-V., who was most helpful and generous to me during this and other stays in Ecuador. I have had field experience with all except one species, *Ameiva ameiva petersi*, known only in the lower part of Amazonian Ecuador (Nuevo Rocafuerte and Loreto). Descriptions of all species are included except *A. edracantha*, which has been clearly recognized and is sharply distinct from the other species. Abbreviations used in this paper include EPN for Escuela Nacional Polytecnica of Quito, JAP for James A. Peters collection, MSU for collections of Michigan State University, and OV for Gustavo Orces-Villagomez personal collection.

<sup>1</sup>Supported in part by Grant No. G21010 from the National Science Foundation.

## SPECIES ACCOUNTS

*Ameiva ameiva petersii* Cope

This species was originally described by Cope (1868:99) from "the Napo or Marañon," referring to the rivers followed by the Orton Expedition. Most of the Napo and all of the Marañon are now Peruvian, since the Río de Janeiro decisions assigned a large part of Amazonian Ecuador to Peru. It is, of course, quite uncertain from whence the type actually came. Barbour and Noble (1915:466) had a series of specimens they thought belonged to this taxon, from Teffe and Manaos, Brazil, but in their description they do not describe the scutellation of *petersii* except to say it is the same as that of *A. ameiva ameiva*. When the latter description is compared with the available specimens from Ecuador, there are some striking differences. At any rate, the series described here was collected on the Río Napo, and represents the first available specimens from within the region mentioned in the type description.

*Description:* Anterior nasals in broad contact behind rostral; frontonasal, prefrontals, and frontal normal; a pair of frontoparietals and five occipitals, outermost lying slightly posteriorly to inner three, with center occipital often divided into pair of scales; area between occipitals and granular dorsal scales occupied by flat, polygonal scales; four supraoculars, middle two large, anterior smaller, and posteriormost smallest; posterior margin of supraocular region covered by several rows of small scales extending forward between frontoparietals and supraoculars to level of about  $\frac{1}{3}$  to  $\frac{1}{2}$  of third supraocular, and between supraoculars and superciliaries to level of first supraocular. A single loreal; a very elongate superciliary followed by several much smaller ones; 3-4 larger scales in semicircle around anterior and ventral border of orbit; a single row of enlarged scales extending horizontally from dorsal margin of eye to temple; usually six definable upper labials. Six or seven lower labials, a single postmental and a series of paired infralabials, all except the first and part of the second of which are separated from the labials by granules or slightly enlarged scales; a broad band of enlarged scales running transversely across throat between angles of jaws and anterior gular fold; a transverse patch of enlarged scales across mesoptychium.

Dorsal and lateral scales tiny, granular, and undifferentiated. Venter with 28-32 transverse rows of rectangular, flat, imbricate plates, with 10 scales in a single row, bordered laterally by one and sometimes two slightly smaller but still enlarged scales, which can

increase count of ventral rows to 12. Forelimb with 2-3 rows of enlarged scales on anterior margin, one much larger than others; a patch of enlarged scales behind the elbow, rest of arm covered with granules. Hindlimb with strongly enlarged flat scales anteriorly and ventrally, with smaller but still enlarged scales extending to femoral pore series; 13-17 femoral pores. Tail with enlarged, flat, abutting plates in concentric whorls, with degree and magnitude of keeling increasing throughout length of tail to end.

Dorsum marbled with black on an olive ground color in juveniles, unicolor blackish-olive in old adults. Sides with light spots in three to five horizontal series, practically forming stripes in juveniles, but very broken up in adults, on which vertical fusion can take place, or the spots may be lined up in vertical series. Dorsum of head lighter than dorsum of body. The chin and throat are blue-black, with irregular white spotting on the labials; the ground color of the body and limbs ventrally is cream-white, heavily invaded by blue or black laterally and with bluish spotting on mid-venter. The area around the vent extending onto tail and hind limbs is the lightest ventral region.

*Variation within species:* There are 28 specimens available from Ecuador, all except one from Nuevo Rocafuerte. One of these has the frontal divided by a transverse suture, another has it partially divided by a longitudinal suture, but it is entire in the remainder. In only one specimen are the frontal and the frontoparietals separated from supraoculars by granules, although in all cases the granules reach between the third supraocular and frontoparietals a short distance. The ventral scales are sometimes divided longitudinally, resulting in obviously smaller scales, and if a count is made across such a transverse row there will be occasionally eleven but more often twelve in the series, and if the enlarged scales at the ends of the ventral rows are included, as many as fourteen in a series. The femoral pores are most often 15 or 16, with these counts recorded for 35 out of 44 legs.

Specimens examined: O.V. 1037, from Loreto, Napo Province; O.V. 1302-28, from Nuevo Rocafuerte, Napo Province.

#### *Ameiva septemlineata* Duméril and Duméril

Although Burt and Burt (1933:53) indicated that the range of this species was "Bolivia and possibly northern Chile, northward into Colombia," it is very likely that they did not clearly recognize the taxon. They were convinced that *A. bridgesii* was a synonym of *sep-*

*temlineata*, and felt that the specimen described by Barbour and Noble (1915:477) as *septemlineata* was actually a representative of the species *A. edracantha*. I have compared the description by Barbour and Noble with specimens of both species, and I am sure that they had a specimen of *septemlineata*. This species is a member of the Chocóan fauna, living only in northwestern Ecuador and the lowlands of Pacific Colombia, and the record of a specimen from Huachi, Bolivia, by Burt and Burt (1931:311), is not only doubtful, it is clearly impossible. Since it appears that some confusion exists as a consequence of these older papers, I re-describe this species on the basis of material in my collection and that of Escuela Polytecnica Nacional of Quito.

*Description:* All scales on dorsum of head posterior to frontonasal small, with from 1 to 7 scales lying between the widely separated and much reduced prefrontals (when these scales can be recognized) and from 4 to 8 scales in area occupied by frontal in other *Ameiva*; occiput and temples occupied by many small polygonal scales. Two enlarged supraoculars, usually surrounded by 1 to 3 rows of granular scales, but occasionally in contact with scales in frontal area. Usually all head scales with irregular surface as consequence of swollen, raised areas irregularly distributed but occasionally lying in position of a keel, or forming part of a ridge running across several scales. Scales of chin from infralabials to anterior gular fold subequal, although in older individuals some slightly enlarged scales occupy central area; scales on mesoptychium distinctly and strongly enlarged, flat, and lying in one to several transverse rows.

Scales on dorsum and sides of body granular and undifferentiated. Ventral scales in 25-29 transverse rows, with six rectangular, flat scales in a single row. Preanal patch of 3-5 enlarged scales, surrounded by granules. Forelimb with 1-2 rows of greatly enlarged scales on anterior margin of humeral region, continuous with enlarged series on forearm; a small series of enlarged scales lies on postbrachium near elbow. Hindlimb with strongly enlarged scales on anterior margin and venter of thigh, continuous with enlarged scales on venter only of lower leg; rest of limb covered with granular scales; 17-25 femoral pores.

Middorsal ground color brownish-gray, with regularly arranged black marbling; vertebral stripe of bright blue or greenish-blue from tip of snout to end of tail, but tends to fade and finally disappears with age, dorsolateral and lateral lighter bluish lines set off a much darker reddish-brown to brownish-black area; the lateral blue line

often broken into series of dots and spots, and often participates in formation of vermiculated area on sides; a ventrolateral light line often vaguely present but not well marked may also contribute to lateral vermiculation. Head unicolor dark to black except for mid-dorsal stripe. Venter may be light in juveniles, but usually gun-metal blue to blackish in most specimens.

*Variation within the species:* A total of 82 specimens have been used in making this analysis. The total rows of ventrals, ranging from 25 to 29, are distributed as follows (number of specimens in parentheses): 25 (5); 26 (14); 27 (36); 28 (23); 29 (4). The anteriormost row of ventrals, which is wider than the belly rows, extends across the shoulder girdle, and may be followed by one or two additional rows of the same nature. The first ventral row with four scales in it is the third in five individuals, the fourth in 25, the fifth in nine, and in two specimens there is no row with as few as four ventrals. The count remains four to the level of the fifth through ninth rows, then increasing to six to the level of the 24-27 rows. Four specimens have a count of eight ventrals for a very few rows.

There is a considerable variability in the femoral pore counts, distributed as follows: 17 (5); 18 (14); 19 (32); 20 (42); 21 (24); 22 (20); 23 (15); 24 (5); 25 (2).

This species is compared below with *A. bridgesii*, to demonstrate the differences between them. The scales of the forelimb are shown in fig. 1, and the arrangement of scales on the mesoptychium in fig. 2.

Specimens examined (all from Ecuador): Chimborazo Prov.: Chilicoy—JAP 2578, 2 km. south of Pallatanga—JAP 3503. Esmeraldas Prov.: Hacienda Equinox, 30 km. NNW (airline) from Santo Domingo de los Colorados—JAP 1755-60, 1762-65, 1799-1802, 1805-06, 1853, 1894-96, 1911-14, 1919. El Oro Prov.: 7 km. SSE of Machala—JAP 3577-79. Guayas Prov.: Bucay—EPN 1051-58, Headwaters of Río Congo—EPN 1048-49, Milagro—JAP 2529. Los Ríos Prov.: Quevedo—EPN 1034-36, 1044. Pichincha Prov.: Santo Domingo de los Colorados—EPN 389-95, 408-10, immediate environs of Santo Domingo de los Colorados ( $\pm$  6 km. east—JAP 3960, MSU 1384-86, 1388-89, 1391-92, 15 km. east—JAP 4108, 18 km. west—JAP 4028-33). Hacienda Lelia—EPN 412-13. Puerto Ila—EPN 414-15. Río Caoni—EPN 1068. Río Toachi—EPN 1045-47, 1064-66.

#### *Ameiva bridgesii* Cope

This species has been recognized as valid by most authors since Cope

described it in 1868 (p. 306), but Burt and Burt (1930:29) sank it in *Ameiva septemlineata* without explanation. They repeated this synonymy later (1931:311), indicating those characteristics shared by the two species and using these as the basis for their action. It happens that no author has discussed this species since the appearance of the series of papers by Burt and Burt, and it thus becomes necessary to indicate that I am rejecting the synonymy of *bridgesii* with *septemlineata*, and restoring it to the status of a full species.

*Description:* All scales on dorsum of head posterior to paired anterior nasals, which are in contact on midline, usually very small. Frontonasal sometimes as large as in other *Ameiva* sp., sometimes divided into two scales by midline suture; from 3 to 9 small scales separating the reduced prefrontals (which may be so small as to be undistinguishable from rest of small scales); from 3 to 9 scales in area occupied by the frontal in other *Ameiva*. Temples and occiput occupied by many small, keeled, almost granular scales. All dorsal head scales either keeled fairly heavily or with raised, swollen areas forming part of a ridge continuous across several scales. Scales from postmental to anterior gular fold small, almost granular, with none enlarged; scales on mesoptychium also small, with no row of distinctly enlarged, flattened scales lying transversely across fold.

Scales of body granular and undifferentated except ventrally, where large, flat, rectangular scales lie in 24-26 transverse rows, with six scales in single row. Preanal patch of 2-4 enlarged scales surrounded by small granules. Humeral part of forelimb without enlarged flat scales on anterior margin, although few slightly enlarged and heavily keeled scales may occur there; very small patch of enlarged flat scales on posterior margin of upper arm near elbow; series of enlarged scales on anterior margin of forearm. Hindlimb with strongly enlarged flat scales on anterior edge, extending onto ventral surface but separated from femoral pore series by granular scales; ventral surface of tibia-fibula area with large plates; rest of limb covered with granules; 19-27 femoral pores.

Coloration very similar to that given above for *septemlineata*, except that even in juveniles the entire venter is slaty-black to jet black in preservative.

*Variation within the species:* 21 specimens have been available to me, and this provides the opportunity to survey species variability more adequately than has been possible previously. Some of this variability has been presented above in the description. The ventral plate arrangement calls for more extended comment, however, since

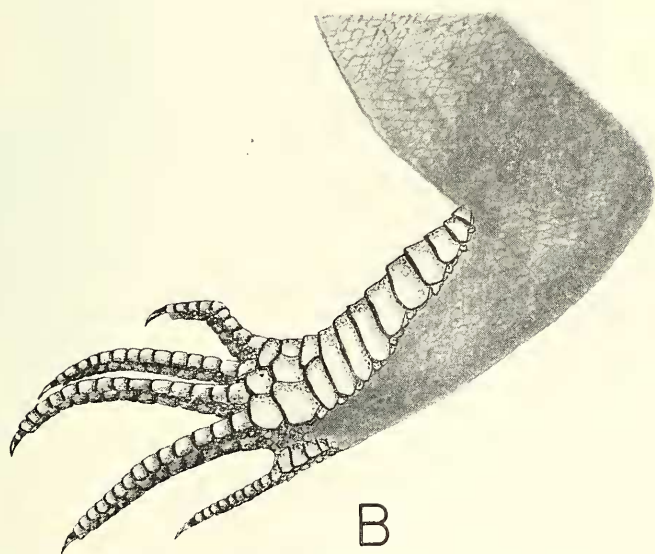
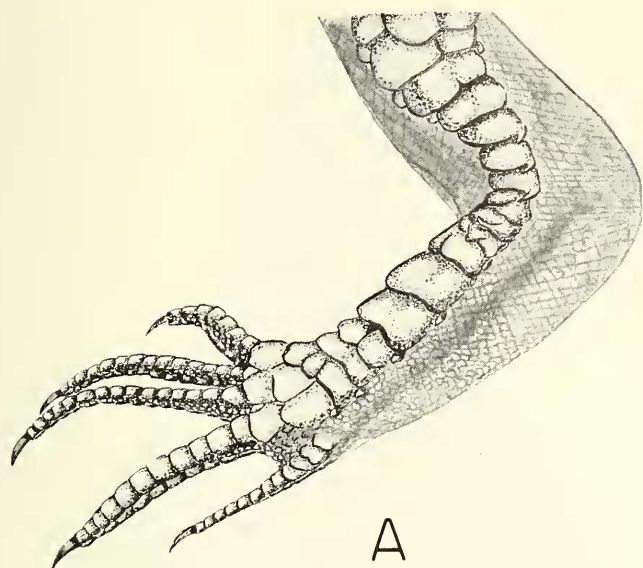


Figure 1. The forelimb of (a), *Ameiva septemlineata*, and (b), *Ameiva bridgesii*, to show the differences in the scales on the upper arm.



A

*Figure 2.* The chin and throat of (a), *Ameiva septemlineata*, and, opposite, (b), *Ameiva bridgesii*, to show the difference between the scales occupying the mesopterygium in the two species.





B

these counts play a role in species assignment. The anteriormost row of ventrals, lying across the shoulder girdle, is generally larger than the others, includes more large scales, and extends further across the ventral surface, and may be followed by one or two additional rows of the same nature. The first row with only four ventrals is the second in one specimen, the third row in seven, and the fourth row in two, in the ten individuals for which data is available. There are four scales in the ventral rows to the fourth through ninth rows, after which they increase to six, staying at that count to the 22nd to 24th rows. The next to last row usually has two to five scales, the last row two or three. The total rows are 24 in seven specimens, 25 in seven, and 26 in five.

The femoral pore count ranges from 19 to 27, with the following distribution (number of occurrences in parentheses following the number of pores): 19 (1); 20 (2); 21 (3); 22 (7); 23 (10); 24 (5); 25 (6); 26 (4); 27 (1).

The scales on the anterior margin of the brachial region are always small, although there may be a series or two of slightly enlarged, heavily keeled scales in the area. This contrasts strongly with the enlarged, flat, smooth scales in the same area in *A. septemlineata*, and constitutes one of the best reference points for quickly distinguishing the two forms, as is seen in Figure 1. The size and shape of the scales on the mesoptychium is also quite different in the two species, as shown in Figure 2. There is a marked difference in the scales of the dorsum of the head, for in *bridgesii* all head scales are finely broken up into many small scales, most of which are heavily keeled, while in *septemlineata* the breakup of the scales has not progressed so far, and the scales are swollen irregularly, with true keeling present in only a very few scales on a few specimens.

Specimens examined (all from Ecuador): Cotopaxi Prov.: valley of Río Toachi below Sigchos—EPN 1-5. Pichincha Prov.: Palma Real near Río Guallabamba—EPN 1038-39, Río Blanco below mouth of Río Toachi—EPN 1942-43. Imbabura Prov.: Below Chota in valley of Río Chota—EPN 1040-41. Esmeraldas Prov.: El Placer—JAP 2842, JAP 2852, Cachaví and environs—JAP 2877-78, JAP 2947-49, Río Cayapa at Sapallo Grande—MSU 1400, MSU 1403. Carchi Prov.: 1 kilometer N of Lita—JAP 3042.

*Ameiva edracantha* Bocourt

This species is easily recognized, is well characterized by Boulenger (1885:349), and has been adequately identified by most authors

since its original description. Burt and Burt (1930:29) indicated that the specimen described as *Ameiva septemlineata* by Barbour and Noble (1915:477) was actually a specimen of *edracantha*, but I do not understand how they arrived at this decision. *A. edracantha* is the only species of the genus found on the western side of the mountains that is characterized by the normal arrangement of head scales, while all the others have a more or less complete division and subdivision of the head scales resulting in the absence of identifiable prefrontals, frontals, and in some cases parietals or occipitals. The specimen described by Barbour and Noble possessed these subdivisions of normal head scalation, and could not be *edracantha*, although its femoral pore count is low (14 in the specimen, 17 lower limit in specimens I have examined).

In addition to the points mentioned in the description by Boulenger of this species, I should like to point out that enlarged preanal plates occupy all of the preanal area in this species, from the lip of the anus to the end of the broad transverse rows of ventrals. In all other species from Ecuador, the enlarged preanals are separated from the transverse ventrals by several rows of much smaller, often granular scales. The enlarged scales on the gular area of the neck, anterior to the first gular fold, are grouped centrally in a small circle, while in *petersii* these enlarged scales lie in a band across the throat, and in *bridgesii* and *septemlineata* these enlarged scales are completely missing. In the other Ecuadorian species there is a prominent development of granular scales surrounding the supraoculars, but in *edracantha* there is practically no such development. The fourth supraocular mentioned by Boulenger as occasionally present in *edracantha* appears to be a remnant of the granular scales so well developed in other species.

Boulenger says that the frontoparietals are united or distinct; Barbour and Noble indicate that the frontoparietals are perhaps abnormally united. There is only a single frontoparietal in the three specimens in my collection, but I have not had an opportunity to check this characteristic for the many individuals represented in collections.

Specimens examined: Guayas Prov.: 1 km. North of Playas—JAP 3059-60, 12 km. southeast of Playas—JAP 3075.

#### ***Ameiva orcesi*, NEW SPECIES**

*Holotype*: United States National Museum 149655, adult male from half kilometer northeast of Abdon Calderon, Azuay Province, at

1600 meters altitude, collected by James A. Peters, February 28, 1959.

*Topoportotypes*: JAP 3534-39, all collected at the same time and place as the holotype. PARATYPES: JAP 3544-46, from 4 kilometers southwest of Abdon Calderon, 1700 meters. JAP 3575, from Río Minas, 20 kilometers west of Santa Isabel, 1250 meters. EPN 1060-63, from Santa Isabel,  $\pm$  1400 meters.

*Range*: The valley of the Río Jubones, at moderate altitudes (between 1250 and 1700 meters, as currently known), on the western slope of the Andes in Azuay Province, southwestern Ecuador.

*Diagnosis*: Differs from other *Ameiva* in possession of a number of small scales occupying the position of the frontal scale of other species; prefrontal scales separated medially; six rows of ventrals anteriorly increasing to eight on much of the belly; in general coloration; and in the distinctive combination of characters given in the description below.

*Description*: Rostral forms obtuse angle behind; nostril in suture between two nasals, anterior nasals in contact on midline; fronto-nasal ovate, often with posterior projection; prefrontals either separated by a single median scale or by a contact between frontonasal and scales in frontal area, occasionally in contact; frontal usually bisected both transversely and longitudinally, making 3-5 small scales; two frontoparietals usually distinguishable; interparietal equal to or slightly longer than 2-4 other parietals; 3-4 rows of small occipitals, which are distinctly larger than dorsal scales; two supraoculars, anterior larger, posterior separated from all other head scales by 1-3 rows of granular scales, anterior separated from supraciliaries by single row of small scales; usually several small scales anterior to the first supraocular separate it from a single, slightly larger, elongate scale between the first supraciliary and the prefrontal. Loreal quite large, undivided; five supraciliaries, second largest; a series of four to five scales below eye, all except last ridged along upper margin, the first is higher than long and occupies a preocular position, the others are longer than high and are subocular; a few enlarged, irregular postoculars; a short series of enlarged scales extends posteriorly from upper corner of eye to end of head over ear opening, rest of temporal region with granular scales; 6-7 upper labials, 5-6 lower labials, third very elongate; a single postmental followed by three pairs of chinshields, of which only the first is in contact on midline; third chinshield followed by 3-4 enlarged scales about  $\frac{1}{2}$  size of chinshield; all scales on throat anterior to first

gular fold small; two strong collar folds; mesoptychium occupied by several rows of enlarged scales. Body dorsally and laterally covered by granular, smooth scales; a strong lateral fold from axilla to groin; ventrals in 27-29 transverse rows containing six rectangular, flat scales anteriorly, increasing to eight at the level of 10-13 rows, reducing to six again at level of 22-27 rows, outermost row almost always narrower than others. Preanal plates in a longitudinal series of three, forming an irregular rectangle, posteriormost of series often divided into a pair of scales. Upper arm with a series of broad, flat, smooth plates along anterior edge, bordered above by scales slightly larger than granules, and continuous with an even larger series of scales on the lower arm; a patch of moderately enlarged scales on posterior aspect of upper arm at elbow; all other arm scales granular; digits covered with smooth scales, not denticulate. Hind limb with several rows of enlarged smooth scales anteriorly and ventrally; all dorsal and posterior scales granular; digits denticulated; 18-24 femoral pores. Caudal scales abruptly larger than body granules, in concentric whorls; the dorsal and lateral caudals are keeled; the ventral caudals are smooth on the anterior half of the tail, from which point on they become more and more strongly keeled.

Color in alcohol: Dorsum dark bluish brown, with three light blue lines from occiput to tail, one middorsal and often very obscure or entirely absent, the others dorsolateral; sides below dorsolateral line a very dark reddish-brown, and sharply set off at middle sides from light blue of lower sides. Ventral surfaces from almost entirely bluish, spotted with white to almost entirely cream-white, spotted with blue.

Color in life: Middorsal stripe, beginning at shoulder, a slightly lighter red than rest of middorsum, which is a pale rust red. Dull yellow dorsolateral lines begin on shoulder, extend to base of tail. A dark, rusty red area extends from these dorsolateral lines to the mid-side, where it stops abruptly at a poorly defined pale yellowish stripe. Lower sides a greenish-gray; edges of ventrals deep bluish; rest of belly light blue. Head olive above, slightly tinged with red posteriorly. Bluish lips, light blue chin and throat. Tail not as distinctly red dorsally as body, fading into olive posteriorly. Venter of tail yellowish-white. (From JAP 3575, as noted by myself shortly after the specimen was collected.)

*Description of Holotype:* As for the species, with the following individual variations; a single scale medially between the prefrontals, followed by a pair of scales between anterior corners of the eyes, and

then a single scale, a pair of scales, and three scales in antero-posterior sequence between the supraoculars; a row of four enlarged scales in parietal region, the outermost much larger than the inner two. Six upper labials, five lower labials. Ventrals in 29 transverse rows, with 11 scales in first row, 10 in row 2, 8 in row 3 (with outermost divided), 6 in row 4, 5 in row 5, 6 in rows 6-11, 8 in rows 12-25, 7 in rows 26-27, 6 in row 28, and 3 in row 29. Antermost preanal much smaller than following two. Femoral pores 22-21. Posterior part of tail regenerated. Body length 105.6 mm.

Habits and Habitat: The general area from which these lizards come is very dry, lying in a rain shadow part of the western slopes of the Andes. There are several running streams in the area, and these are widely utilized by the farmers for irrigation, but even the higher banks of these streams carry only xeric vegetation. The specimens collected one-half kilometer northeast of Abdon Calderon were all extremely active at the hottest part of the day, moving in and out of the roots and stems of low bushes and small, thorny shrubs on the embankment of the roadway, just above a small irrigation ditch through dry, dusty soil. The three specimens from 4 kilometers southwest of Abdon Calderon were shot along the roadside in and near scrubby thickets in a very dry area, and the Río Minas specimen was shot in a grassy tangle among rocks by a small stream. The species is diurnal, and active primarily during periods of sunshine, often retiring completely when a cloud darkened the sun. The individuals are incessantly active when out in the open, practically never stopping as they prowl among the roots and stems looking for food.

#### KEY TO THE SPECIES OF *AMEIVA* KNOWN OR EXPECTED IN ECUADOR

1. Frontal plate replaced by smaller scales; prefrontals either absent or if present, not in contact on middorsal line . . . . . 2  
     Frontal plate entire or divided into two scales by a horizontal suture; prefrontal scales in contact on middorsal line . . . . 4
2. Mesoptychium with enlarged scales; humerus with row of very large, flat, smooth scales on anterior aspect . . . . . 3  
     Mesoptychium with subequal scales; humerus with 1-2 rows of slightly enlarged, strongly keeled scales . . . . *bridgesii*
3. Eight rows of ventrals on much of venter; single scale or frontal-frontonasal contact separating prefrontals; dorsal head scales not ridged and pitted . . . . . *orcesi*

- Six rows of ventrals on all of venter; several small scales separating prefrontals; dorsal head scales heavily ridged and usually pitted . . . . . *septemlineata*
4. Eight rows of ventral plates; males with group of spines on each side of preanal region . . . . . *edracantha*  
 Ten to twelve rows of ventral plates; no spines in preanal region . . . . . 5
5. Last two or three supraoculars bordered entirely by granules, do not contact frontal and frontoparietals (not yet known from Ecuador) . . . . . *bifrontata divisa*  
 No supraoculars except tiny fourth bordered entirely by granules, all others in contact with frontal and frontoparietal . . . . . *ameiva petersii*

LITERATURE CITED

BARBOUR, THOMAS, and G. KINGSLEY NOBLE  
 1915. A revision of the lizards of the genus *Ameiva*. *Bull. Mus. Comp. Zool.*, 59(6): 417-479.

BOULENGER, GEORGE A.  
 1885. *Catalogue of the lizards in the British Museum (Natural History.)* Second Ed., vol. 2, London, 1885; i-xiii, 1-497, pls.

BURT, CHARLES E. and MAY DANHEIM BURT  
 1930. The South American lizards in the collection of the United States National Museum. *Proc. U.S. Natl. Mus.*, 78(6):1-52.  
 1931. South American lizards in the collection of the American Museum of Natural History. *Bull. Amer. Mus. Nat. Hist.*, 61(7): 227-395.  
 1933. A preliminary check list of the lizards of South America. *Trans. Acad. Sci. St. Louis*, 28(1): i-v, 1-104.

COPE, EDWARD DRINKER  
 1868. An examination of the reptilia and batrachia obtained by the Orton expedition to Ecuador and the Upper Amazon, with notes on other species. *Proc. Acad. Nat. Sci. Philadelphia*, 1868: 96-119.  
 1868. Sixth contribution to the herpetology of Tropical America. *Proc. Acad. Nat. Sci. Philadelphia*, 1868: 305-313.